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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,232	12/15/2003	Yuzhuo Li	2993-0115P	8618

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/734,232

Applicant(s)

LI ET AL.

Examiner

Michael A Marcheschi

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-14 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/29/04, 7/28/04</u> . | 6) <input type="checkbox"/> Other: ____. |

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Claims 5 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is indefinite because the examiner is unclear as to what size this distribution is based on. Is it based on the average size of claim 3? If so, this limitation should be literally defined in claim 5 in order to clearly define the scope of the claim. In other words, the claim, as defined, does not clearly define a size distribution.

Claims 10 and 11 are indefinite because the limitation "the complexing agent" lacks antecedent basis since a complexing agent has not been literally defined before.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9, 12-14 and 16-22 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Scott et al.

The reference teaches in sections [0091], [0102]-[0114], [0202]-[0273] and the claims, a CMP composition, used for polishing a semiconductor (containing copper), said composition comprising an oxidizing agent, an abrasive (i.e. polymelamine-see section [0273]), a nonionic surfactant, a passivating agent, chelators, etc, as well as additional abrasives (i.e. inorganic abrasives) and water. The amounts for all of the components are defined. The size of the abrasive is also defined.

The claimed invention is anticipated by the reference because the reference teaches a composition which comprises all of the claimed components. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention absent evidence to the contrary. The recitation of water anticipates soft water. In the alternative, **"A generic disclosure renders a claimed species prima facie obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)".**

Claims 5, 10 and 11 are rejected under 35 U.S.C. 103(a) as obvious over Scott et al. in view of Grunwald.

Grunwald teaches in section [0029] various known chelators for CMP compositions.

With respect to the limitation of claim 5, the primary reference teaches a size range for the abrasive and it is the examiners position that the size range disclosed would encompass the

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claimed distribution and therefore the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". With respect to the limitations of claims 10-11, the primary reference teaches that chelators can be added and the claimed material (amino acid) is a known chelator for CMP compositions, as shown by the secondary reference, thus its use as the material according to the primary reference is well within the scope of the skilled artisan.

Claims 1, 2, 4 and 18-22 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Small et al.

The reference teaches in sections [0020]-[0030, [0048]-[0051] and the claims, a CMP composition, used for polishing a semiconductor (containing copper), said composition comprising an oxidizing agent, an abrasive (i.e. polymelamine-see section [0030] and claims 12-13), a nonionic surfactant, a complexing agent (i.e. chelator), etc. and water. The reference states suitable amounts for the additional additives range from 0.001-about 2 wt.% (i.e. implies that the individual additives can be present in this range.

The claimed invention is anticipated by the reference because the reference teaches a composition which comprises all of the claimed components. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention absent evidence to the contrary.

In the alternative, "A generic disclosure renders a claimed species *prima facie* obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)".

Claims 3, 5-14 and 16-17 are rejected under 35 U.S.C. 103(a) as obvious over Small et al. in view of Scott et al. and Grunwald.

With respect to the limitations of claims 3 and 5, although the primary reference does not teach a particle size, this aspect would have been obvious because Scott et al. teaches a size range for a non polymeric abrasive in a similar CMP composition and thus its use as the size according to the primary reference is well within the scope of the skilled artisan. In addition, it is the examiners position that since the primary reference fails to mention any specific size (criticality), this (the absence of any such limitation) constitutes a broad teaching of sizes, as long as the final composition is obtained. In view of this, it can be reasonably interpreted that the claimed values are encompassed by the broad teachings according to this reference in the absence of any evidence showing the contrary (criticality). Finally, one skilled in the art would have also known by routine experimentation and optimization the desired abrasive size needed to produce the desired abrasive character of the reference polishing composition and the desired particle size is a function of the application and mere recitation of that size does not represent a patentable distinction over this reference to one of ordinary skill in the art, lacking evidence to the contrary. With this being obvious, it is the examiners position that the broad size range can encompass the claimed distribution and therefore the subject matter as a whole would have been

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obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". With respect to the limitations of claims 10-11, the primary reference teaches that complexing agents can be added and since complexing agents are chelators and the claimed material (amino acid) is a known chelator for CMP compositions, as shown by the Grunwald , its use as the material according to the primary reference is well within the scope of the skilled artisan. With respect to the use of an additional abrasive and a passivating agent, it is the examiners position that these components would have been obvious because the primary reference clearly teaches that optional additives can be added. It is the examiners position that the ones defined by this reference are merely examples and do not limitation the reference to only these additives. In view of this, the use of any conventional additive, as shown by Scott et al., is well within the scope of the skilled artisan.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chapman.

The reference teaches in column 3, lines 5-10 and column 5, line 60-column 6, line 3, a polishing composition comprising an oxidizing agent, water and an abrasive (i.e. melamine).

The claimed invention is anticipated by the reference because the reference teaches a composition which comprises all of the claimed components. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention absent evidence to the contrary. Although the reference does not call the composition a CMP, *the preamble*

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limitation is of no consequence when a composition is the same. Ultimate intended utility does not make a composition patentable. See In re Pearson, 181 U.S.P.Q. 64. In addition, applicants are claiming a "material" which the intended use does not carry any weight to the composition (see In re Thuau 57 USPQ 324 (CCPA 1942). Any material possesses a property such that it may be used for a purpose. In addition, irrespective of what the material is called, the composition is the same.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as obvious over Chapman.

With respect to the limitations of claims 3 and 5, although the primary reference teaches a minimum size of 1 micron, it is the examiners position that obviousness still exist because the ranges are close enough (slight difference) that one would not expect a difference in properties.

In re Woodruff 16 USPQ 2d 1934 (Fed Cir 1990); Titanium Metals Corp. v. Banner 227

USPQ 773 (Fed Cir 1985) and In re Aller 105 USPQ 233 (CCPA 1955). In addition, the size of the abrasive, alone, is not seen to provide a patentable distinction over this reference.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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Claims 1-14 and 16-22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all the claims of U.S. Patent No. 6,620,215 alone of in view of Scott et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the reduction to practice of the patented claims would render obvious the instant claims. It is the examiners position that the prior claimed abrasive does **not** have to be a polymer. It is the examiners position that since the patented claims fail to mention any specific size (criticality), this (the absence of any such limitation) constitutes a broad teaching of sizes, as long as the final composition is obtained. In view of this, it can be reasonably interpreted that the claimed values are encompassed by the broad teachings according to these claims in the absence of any evidence showing the contrary (criticality). In addition, one skilled in the art would have also known by routine experimentation and optimization the desired abrasive size needed to produce the desired abrasive character of the polishing composition and the desired particle size is a function of the application and mere recitation of that size does not represent a patentable distinction over the prior claims to one of ordinary skill in the art, lacking evidence to the contrary. With this being obvious, it is the examiners position that the broad size range can encompass the claimed distribution and therefore the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". In the alternative, the particle size would have been because Scott et al. teaches a size range for a non polymeric abrasive in a similar CMP composition and thus its

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use as the size according to the patented claims is well within the scope of the skilled artisan.

With respect to the specific types of additives, the prior claims define generic disclosures of the additives and "a generic disclosure renders a claimed species *prima facie* obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)". With respect to the copper limitation, the prior claims polish semiconductors and semiconductors contain copper, thus this aspect is obvious. With respect to the claims directed to the semiconductor substrate, the aspect is an obvious variation thereof because the prior claims claim polishing this material.

Claims 20 and 22 are rejected under the judicially created doctrine of double patenting over claim 8 of U. S. Patent No. 6,620,215 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent. The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: method of polishing a semiconductor is claimed. Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claims 1-4, 6-14 and 16-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (215).

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The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The reference teaches in column 7, line 30-column 9, line 60 and the claims, a CMP composition, used for polishing a semiconductor (containing copper), said composition comprising an oxidizing agent, an abrasive, a nonionic surfactant, a passivating agent, chelators, etc, as well as additional abrasives (i.e. inorganic abrasives) and water. The amounts for all of the components are defined. The size of the abrasive is also defined.

The claimed invention is anticipated by the reference because the reference teaches a composition which comprises all of the claimed components. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention absent evidence to the contrary. It is the examiners position that the prior claimed abrasive does **not** have to be a polymer.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (215).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

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inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

With respect to the limitation of claim 5, the reference teaches a size range for the abrasive and it is the examiners position that the size range disclosed would encompass the claimed distribution and therefore the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)".

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base

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claim and any intervening claims. The prior art of record fails to teach or suggest the additional limitation of this claim.

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

"A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968)". In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

"A generic disclosure renders a claimed species prima facie obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)".

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)".

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Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548.

Evidence of unexpected results must be commensurate in scope with the subject matter claimed.

In re Linder 173 USPQ 356.

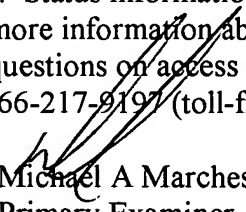
The additional references cited on the 1449 have been reviewed by the examiner and are considered to be art of interest since they are cumulative to or less than the art relied upon in the above rejections.

Any foreign language documents submitted by applicant has been considered to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L Bell can be reached on (571) 272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael A Marcheschi
Primary Examiner
Art Unit 1755

1/05
MM